

Alaska Aviation Weather Unit Product Descriptions

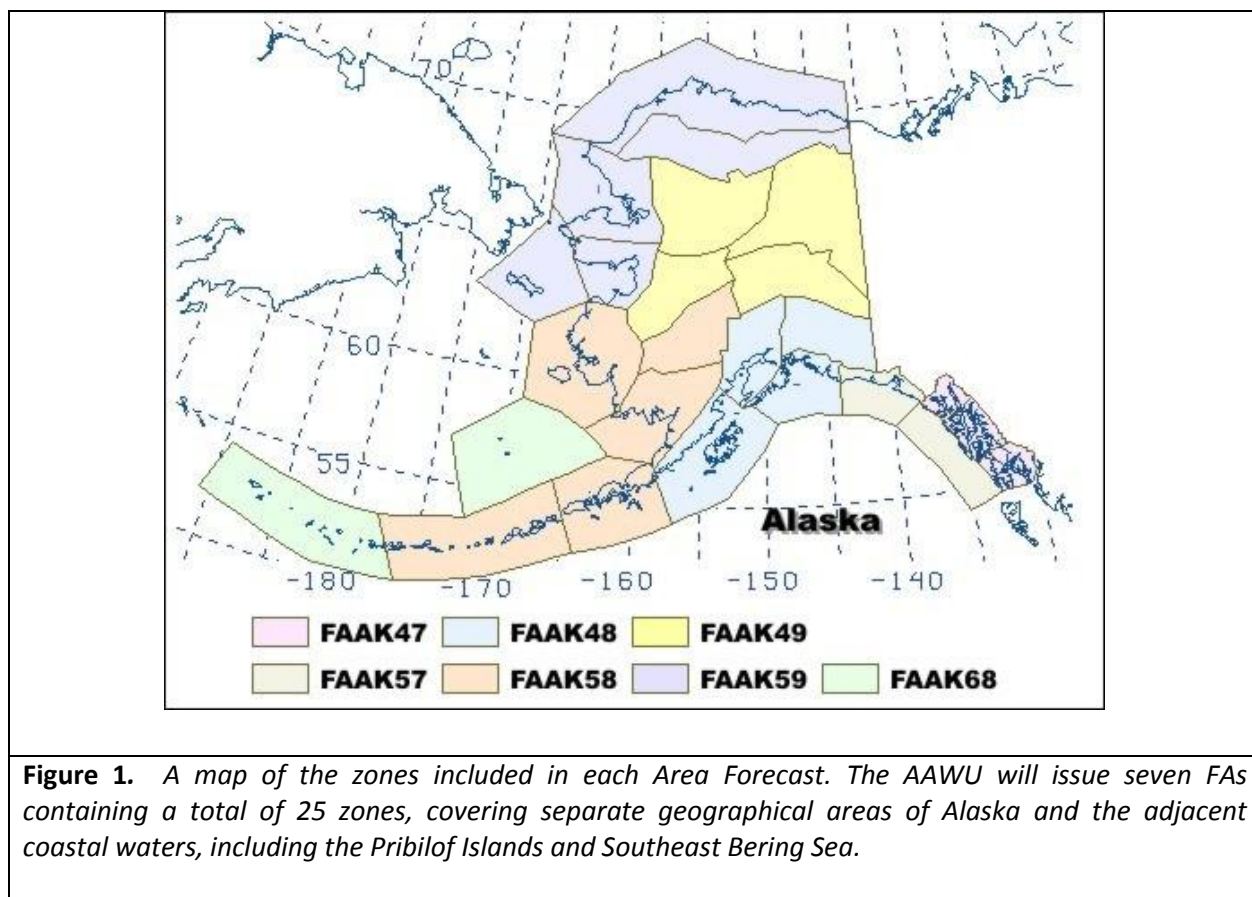
The Alaska Aviation Weather Unit (AAWU) prepares three types of en-route forecasts and advisories to be used in flight-planning and as pilot briefing aids: Area Forecasts (FAs), Graphical Area Forecasts, and Aviation In-Flight Advisories (AIRMETs and SIGMETs). This document describes each of these products.

Area Forecast (FA)

The FA is a 12-hour forecast of expected large-scale weather conditions. The FA also includes an outlook for the six hours following the valid time of the forecast for a total of 18 hours of weather information. Forecast weather elements are sky condition, cloud height, mountain obscuration, visibility, weather and/or obstructions to visibility, strong surface winds (direction & speed), icing, freezing level, and mountain pass conditions. AIRMETs are included in the FAs and also transmitted as separate bulletins. All times, unless stated otherwise, are Coordinated Universal Time (UTC) denoted by the suffix Z.

Since the FA primarily deals with widespread significant weather features, it may not include localized situations which affect aircraft operations. This is particularly true in areas where weather observations are sparse. In Alaska, FAs are issued at **4:15am**, **12:15pm**, and **8:15pm** and are amended at other times if weather conditions change significantly from what is included in the forecasts.

For a translation of the contractions used in the FA, please visit the [Contractions Glossary](#).



The following conditional terms will be used in FAs to indicate areal coverage of clouds and visibility obstructions:

- **ISOL** (isolated): Conditions expected over an area less than 3,000 square miles or for less than 50% of the forecast period.
- **OCNL** (occasional): Conditions expected over an area of 3,000 square miles or greater or for more than 50% of the forecast period.

The following terms will be used to indicate areal coverage for showers and thunderstorms:

- **ISOL** (isolated): Less than 25% of the area is affected.
- **SCT** (scattered): 25% to 50% of the area is affected.
- **WDSPRD** (widespread): More than 50% of the area is affected.

Airman's Meteorological Information (AIRMET)

An AIRMET is a concise description of the occurrence or expected occurrence of specified en-route weather phenomena which may affect the safety of aircraft operations, but at intensities lower than those which require the issuance of a SIGMET. AIRMETs are intended to inform all pilots of potentially hazardous weather phenomena.

AIRMETs are included in the FAs and transmitted in a separate bulletin for the following occasional or greater conditions when they are occurring or are expected to occur within the first eight hours of the FA's valid period over an area of at least 3,000 square miles:

- Moderate icing.
- Moderate turbulence.
- Sustained surface wind of 30 knots or more.
- Ceilings less than 1,000 feet and/or visibility less than three miles affecting over 50% of a 3,000 square mile area at any one time.
- Extensive mountain obscuration.

Area Forecast and AIRMET Issuance and Valid Times

AIRMETs will be valid for eight hours from initial issuance time and will be issued three times per day. The AIRMETs, along with Area Forecasts, will still be updated at other times as needed. Table 1 shows the issuance and valid times for the AIRMETs and Area Forecasts.

Table 1. Issuance Times for Area Forecasts and AIRMETs		
Local Alaska Time (UTC during AKST, UTC during AKDT)	Area Forecast Valid Times local Alaska time	AIRMET Valid Times local Alaska time
At 4:15 am (1315 UTC, 1215 UTC)	New Area Forecast <i>Until 4:00 PM with outlook valid 4 PM to 10 PM</i>	New AIRMET <i>(valid through 12:15 PM)</i>
At 12:15 pm (2115 UTC, 2015 UTC)	New Area Forecast <i>Until 12:00 AM with outlook valid 12 AM to 6 AM</i>	New AIRMET <i>(valid through 8:15 PM)</i>
At 8:15 pm (0515 UTC, 0415 UTC)	New Area Forecast <i>Until 8:00 AM with outlook valid 8 AM to 2 PM</i>	New AIRMET <i>(valid through 4:15 AM)</i>

Table 1. Issuance and valid times for both AIRMETs and Area Forecasts in local time UTC for Alaska Standard Time (*AKST), and UTC for Alaska Daylight Time (**AKDT). Updates to text and graphics will occur as needed.

Graphical Area Forecasts

Icing, low-level turbulence, high-level turbulence, and flying weather graphics are issued three times per day and depict the conditions described in the FAs. Surface charts are issued four times per day and convective graphics are issued at 4:30am May 1st through September 30th.

Graphical area forecasts are updated when weather conditions change significantly from what is in the forecast. Table 2 shows the times that Graphical Area Forecasts are issued.

Table 2. AAWU Text and Graphic Product Update Timeline		
Local Alaska Time (UTC during AKST, UTC during AKDT)	Text Products Issued	Graphical Forecasts Issued
At 12:30 am (0930 UTC, 0830 UTC)		○ Surface Map valid 12UTC
At 4:15 am (1315 UTC, 1215 UTC)	○ New Area Forecast and AIRMET	
At 4:30 am (1330 UTC, 1230 UTC)		○ IFR/MVFR Graphic valid 4AM to 4PM ○ Icing and Turbulence Graphic valid 4AM to 4PM ○ Convective Outlook valid 4am to 4am (24 hours) (May 1-Sep 30)
At 6:30 am (1530 UTC, 1430 UTC)		○ Surface Map valid 18UTC ○ 24-60 hour Significant Weather Graphics
At 12:15 pm (2115 UTC, 2015 UTC)	○ New Area Forecast and AIRMET	
At 12:30 pm (2130 UTC, 2030 UTC)		○ IFR/MVFR Graphic valid 12PM to 12AM ○ Icing and Turbulence Graphics valid 12PM to 12AM ○ Convective Outlook Update valid through 4AM (May 1-Sep 30) ○ Surface Map valid at 00UTC ○ 24 hour Significant Weather Graphic Update valid at 12 UTC
At 5:15 pm (0215 UTC, 0115UTC)		○ Surface Map valid 06UTC
At 8:15 pm (0515 UTC, 0415 UTC)	○ New Area Forecast and AIRMET	
At 8:30 pm (0530 UTC, 0430 UTC)		○ 8 PM to 8 AM IFR/MVFR Graphic ○ Icing and Turbulence Graphic valid 8 PM to 8 AM ○ Convective Outlook Update valid through 4 AM (May 1-Sep 30) ○ 24-60 hour Significant Weather Graphics

Table 2. A time line for the issuance and update times of routine AAWU text and graphical forecasts in local time, UTC for Alaska Standard Time (*AKST), and UTC for Alaska Daylight Time (**AKDT).

Flying Weather Graphical Forecasts

The Flying Weather Graphical Forecast will be issued in two, six hour charts valid for a total of twelve hours into the future and issued shortly after the Area Forecasts (see Table 2 for issuance and valid times).

These charts are a graphical representation of the clouds and visibility included in the Area Forecast, but with greater spatial detail. This includes areas of IFR and MVFR conditions, areas of surface winds at least 30kts, and an icon for active volcanoes. The IFR and MVFR areas depicted represent the worst occasional or continuous conditions expected during the valid time of the graphic.

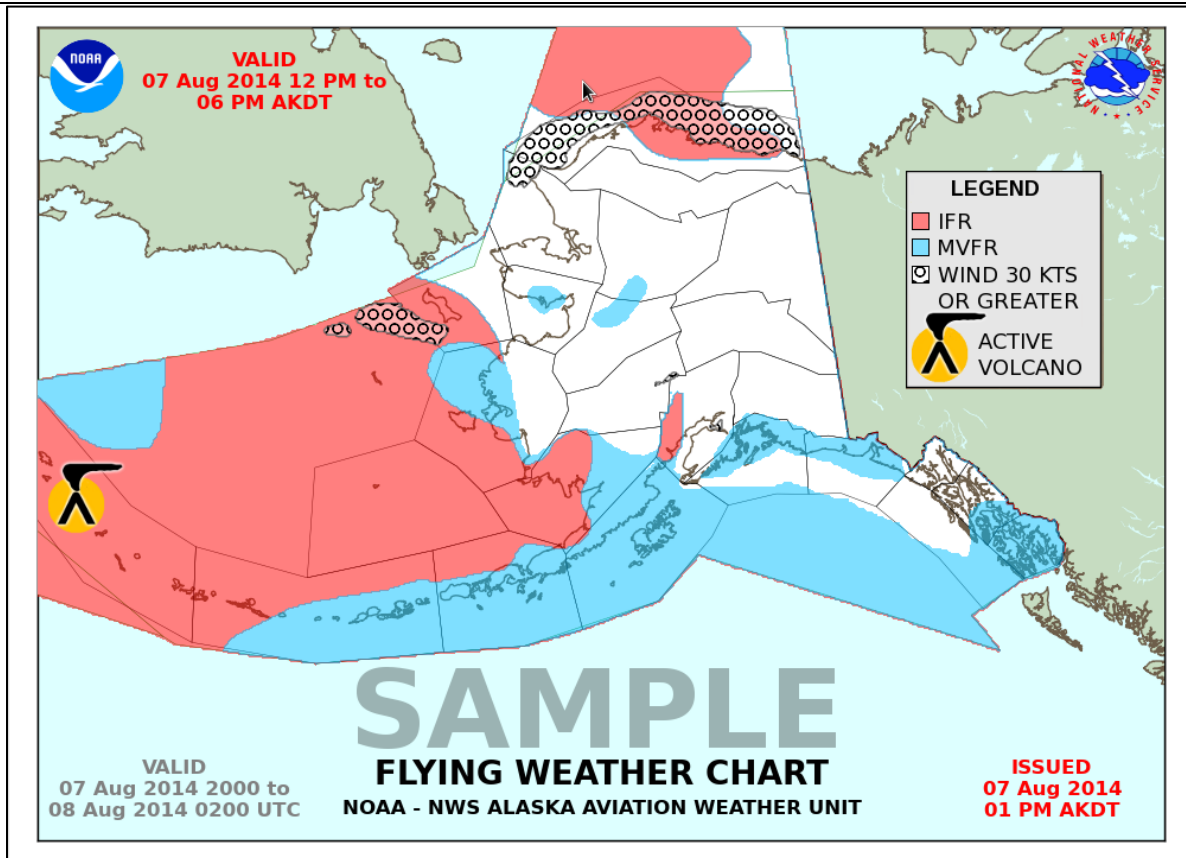


Figure 2. An example IFR/MVFR graphic valid 10PM to 4PM AK Time or 20 to 02 UTC showing areas of IFR, and MVFR conditions. The valid time is shown in the upper left corner in Alaska time and in UTC in the lower left corner. IFR and MVFR areas depicted represent those conditions that are expected to occur at least half of the time. Areas of sustained winds of at least 30 kts are also depicted along with volcanoes that are or recently sent ash into the atmosphere.

Icing, Turbulence, and Convection Graphical Forecasts

Four icing graphics, four low-level turbulence graphics, and four high-level turbulence graphics - each depicting forecasted conditions for a three hour period - are issued at **4:30am**, **12:30pm**, and **8:30pm**. Additionally, 12-hour summary graphics that combine the 3-hour icing and turbulence forecasts are issued at those times. Figures 3A and 3B show examples of Graphical Icing Forecasts. Figures 4A, 4B, and 4C show examples of graphical Turbulence Forecasts.

Convective Outlook graphics are issued at 4:30am May 1st through September 30th and updated throughout the day, as needed. The Convective Outlook describes areas where convective showers and thunderstorms are expected. Figures 5A and 5B show examples on Convective Outlook graphics.

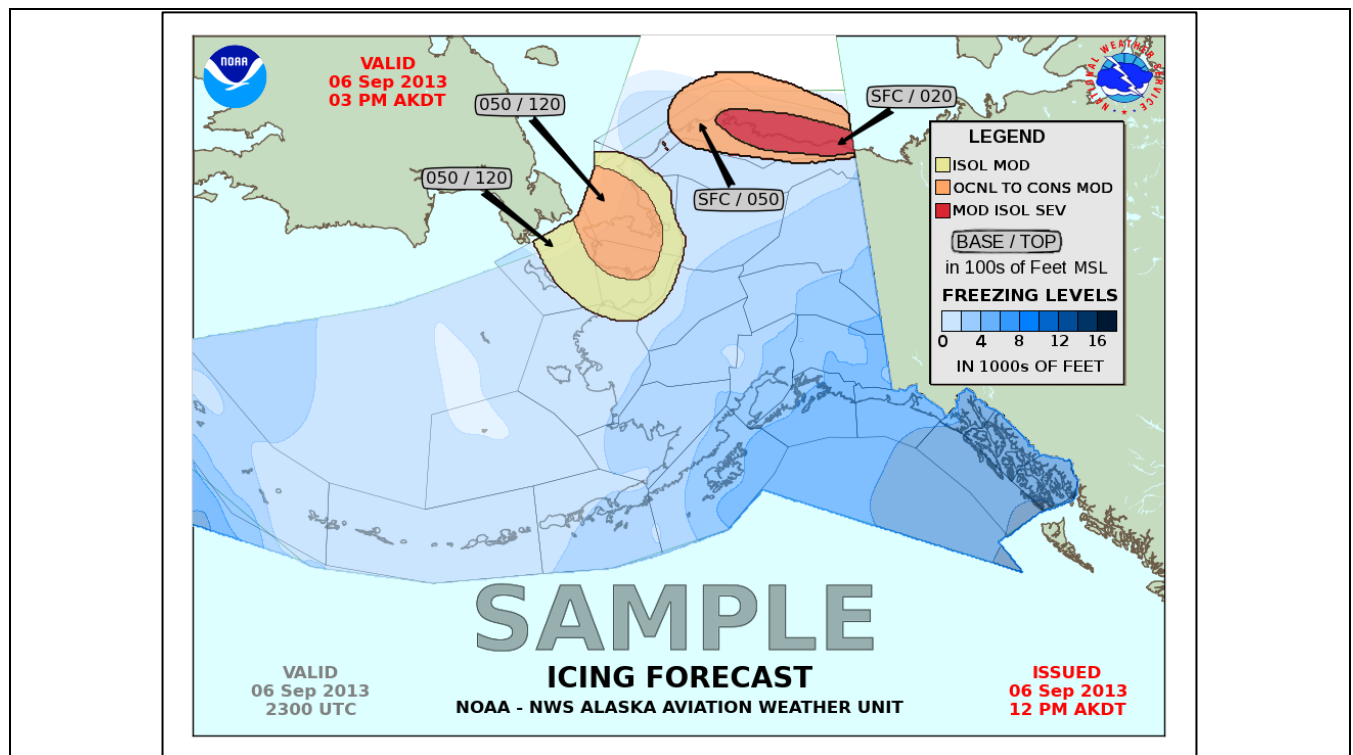


Figure 3A. An example icing graphic valid at 3PM AK Time or 2300 UTC showing isolated moderate or greater icing and freezing levels. The valid time is shown in the upper left corner in Alaska time and in UTC in the lower left corner. Isolated (ISOL) moderate (MOD) is shaded yellow, occasional (OCNL) or continuous (CONS) moderate is shaded orange, and red is used for moderate with isolated severe (SEV). The base and top of each layer of icing forecast is in Mean Sea Level (MSL) in hundreds of feet and defined with a label and arrow. Freezing levels, shown in thousands of feet are shaded in 2000 foot increments MSL with shading becoming darker with height as defined in the legend.

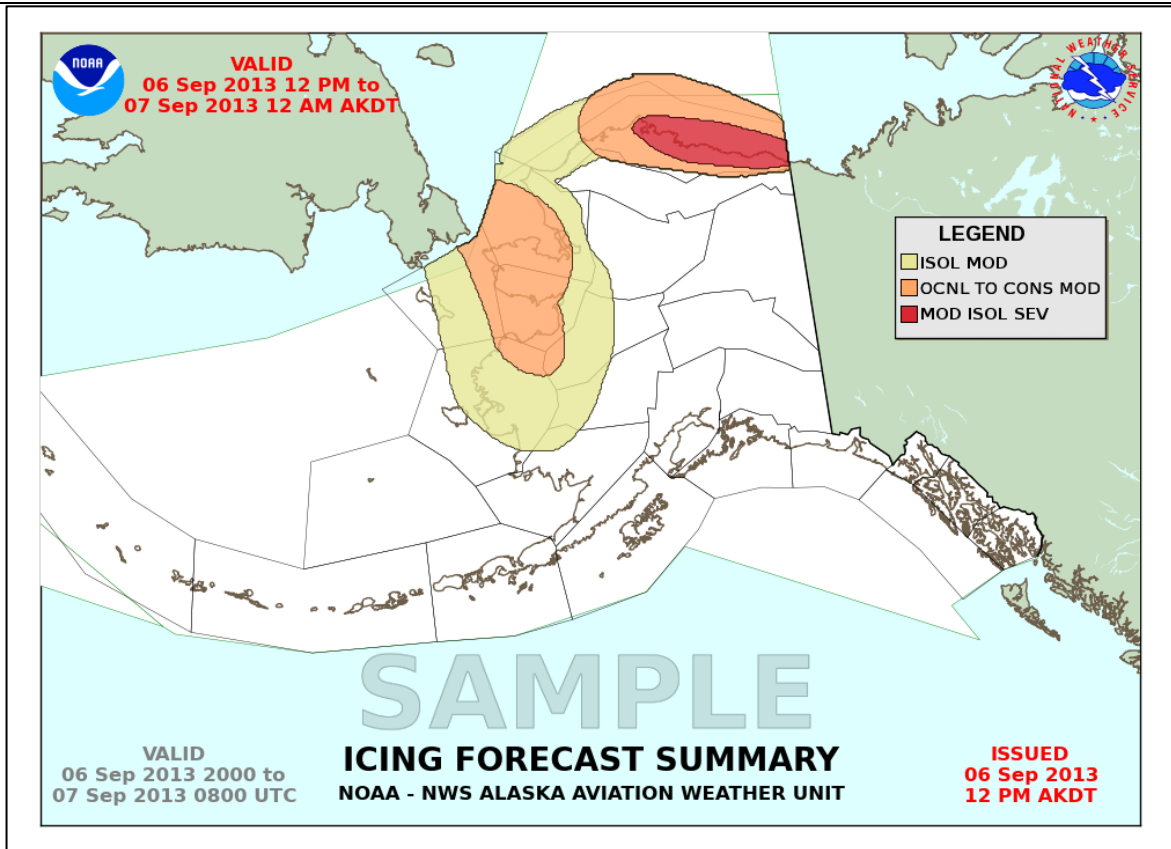


Figure 3B. An example 12 hour summary icing graphic valid from 12pm to 12am or from 0300 to 0800 UTC is depicted. The valid time is shown in the upper left corner in Alaska time and in UTC in the lower left corner. All icing forecast during the 12 hour period are included Isolated (ISOL) moderate (MOD) is shaded yellow, occasional (OCNL) or continuous (CONS) moderate is shaded orange, and red is used for moderate with isolated severe (SEV). Since heights and freezing levels can change over the 12 hour period, the heights and freezing level are only provided on the individual icing graphics and not on the summary graphic.

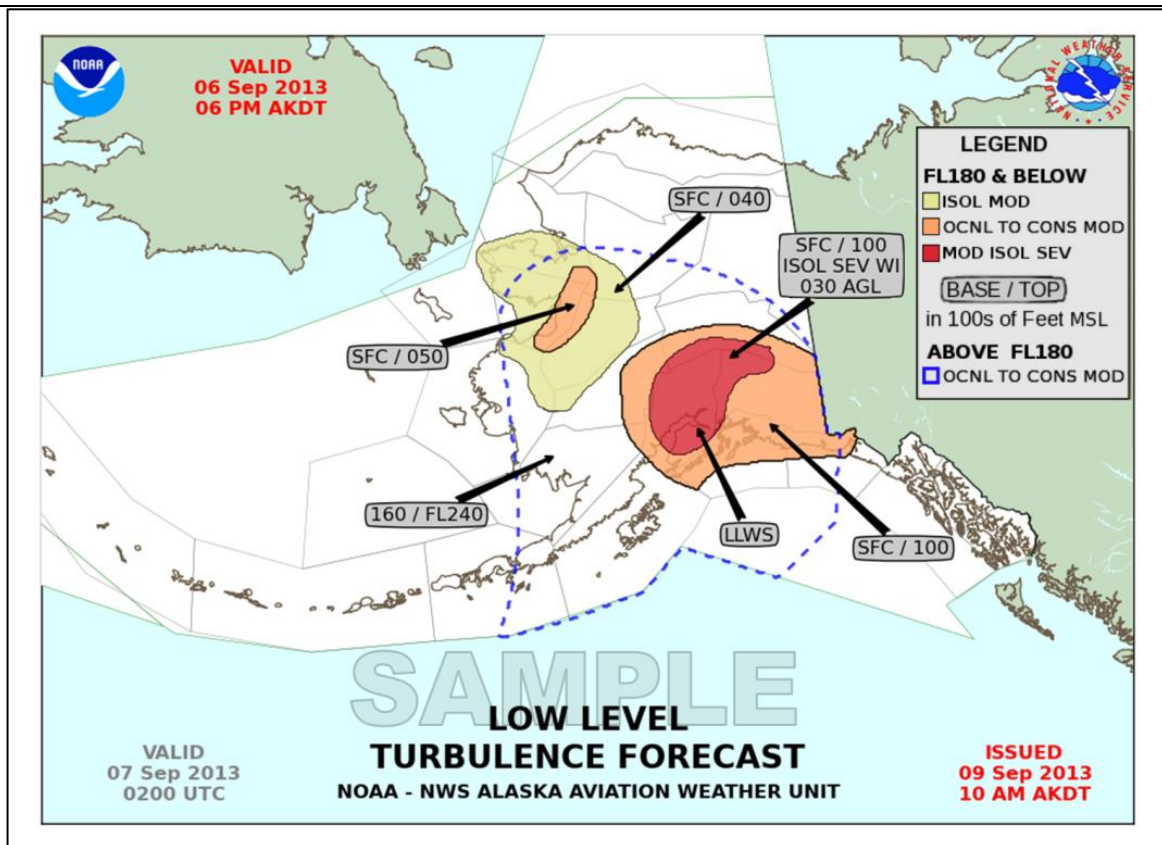


Figure 4A. An example Low Level Turbulence Forecast graphic valid at 6 PM or 02 UTC showing isolated moderate or greater turbulence expected from the surface to 18 thousand feet Mean Sea Level (FL180). The valid time is shown in the upper left corner in Alaska time and in UTC in the lower left corner. Turbulence with a base below FL180 that extends above FL180 is depicted with a blue dashed line. All other turbulence is shaded. Turbulence with a base above FL180 will be included on the High Level Turbulence Forecast graphic only. Isolated (ISOL) moderate (MOD) is shaded yellow, occasional (OCNL) or continuous (CONS) moderate is shaded orange, and red is used for moderate with isolated severe (SEV). The base and top of each layer forecast is in Mean Sea Level (MSL) in hundreds of feet and defined with a label and arrow. All heights are in Mean Sea Level except for turbulence within (WI) is above ground level (AGL). Low level wind shear (LLWS) will also be denoted with an arrow indicating the location.

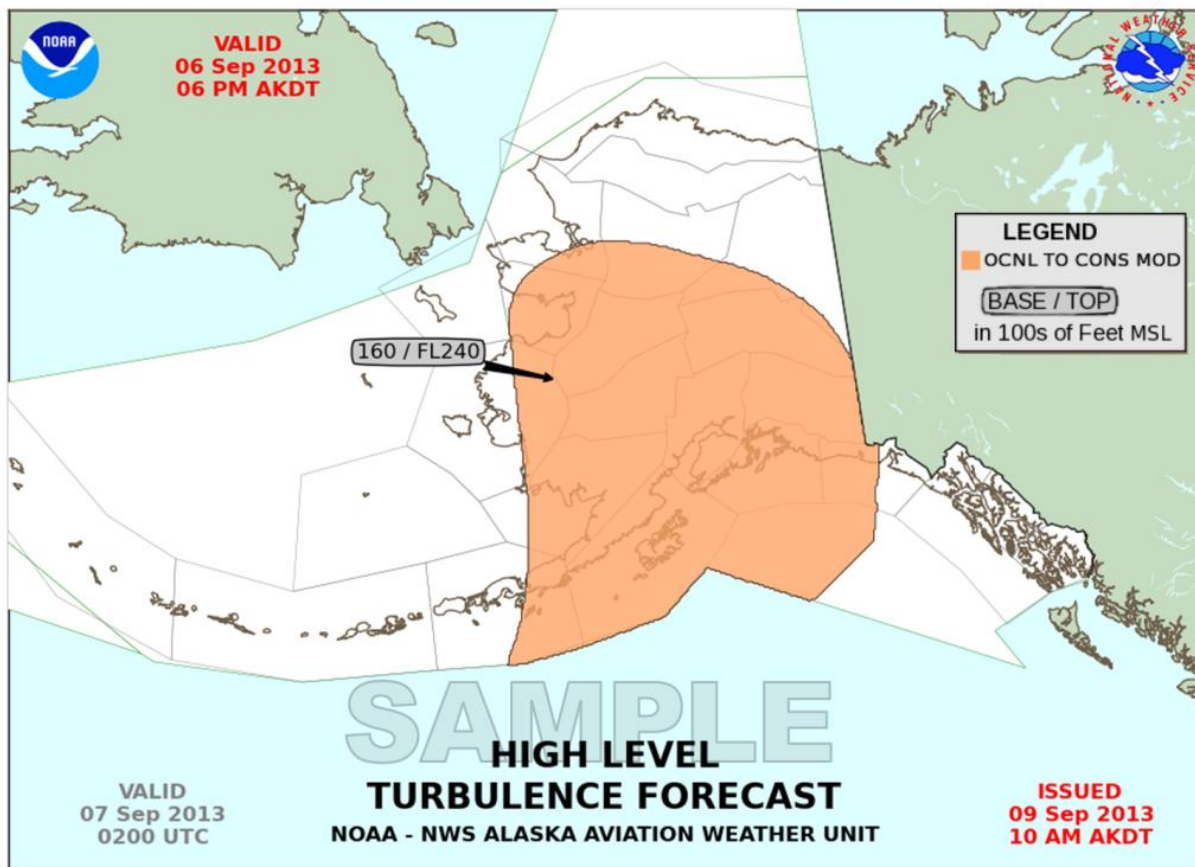


Figure 4B. An example High Level Turbulence Forecast valid for 6 pm or 02 UTC showing occasional (OCNL) to continuous (CONS) moderate turbulence expected that has a base above 18 thousand feet (FL180). The valid time is shown in the upper left corner in Alaska time and in UTC in the lower left corner. The base and top of each layer of turbulence forecast are defined in Mean Sea Level are in hundreds of feet and defined with a label and arrow.

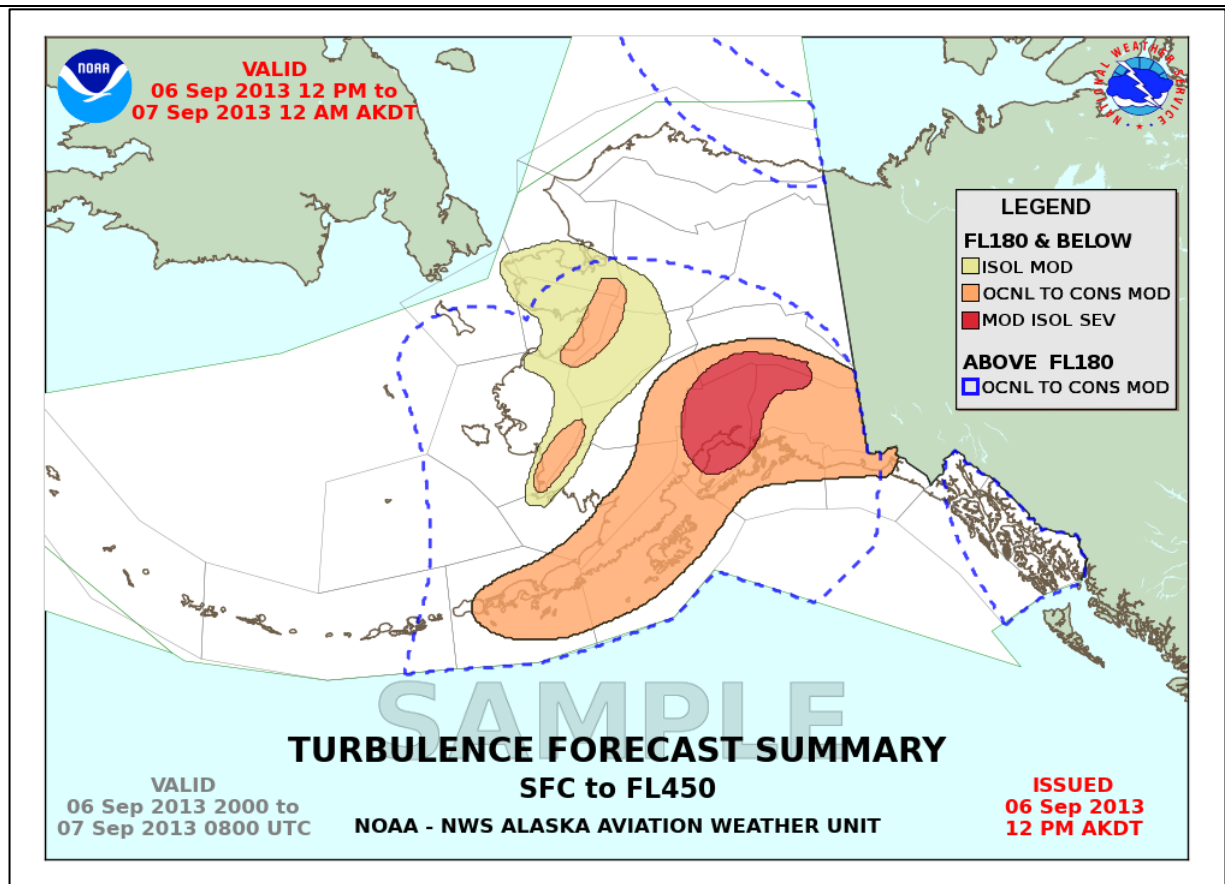


Figure 4C. An example 12 hour summary graphic where low and high level turbulence valid from 12 pm to 12 am or 23 UTC to 08 UTC are depicted. The valid time is shown in the upper left corner in Alaska time and in UTC in the lower left corner. All turbulence forecast during the 12 hour period is included. Isolated (ISOL) moderate (MOD) is shaded yellow, occasional (OCNL) or continuous (CONS) moderate is shaded orange, and red is used for moderate with isolated severe (SEV). Turbulence with a top below 18 thousand feet (FL180) is shaded and occasional moderate turbulence top above FL180 is depicted with a dashed blue line. Since heights can change over the 12 hour period, the heights are not included on the summary graphic.

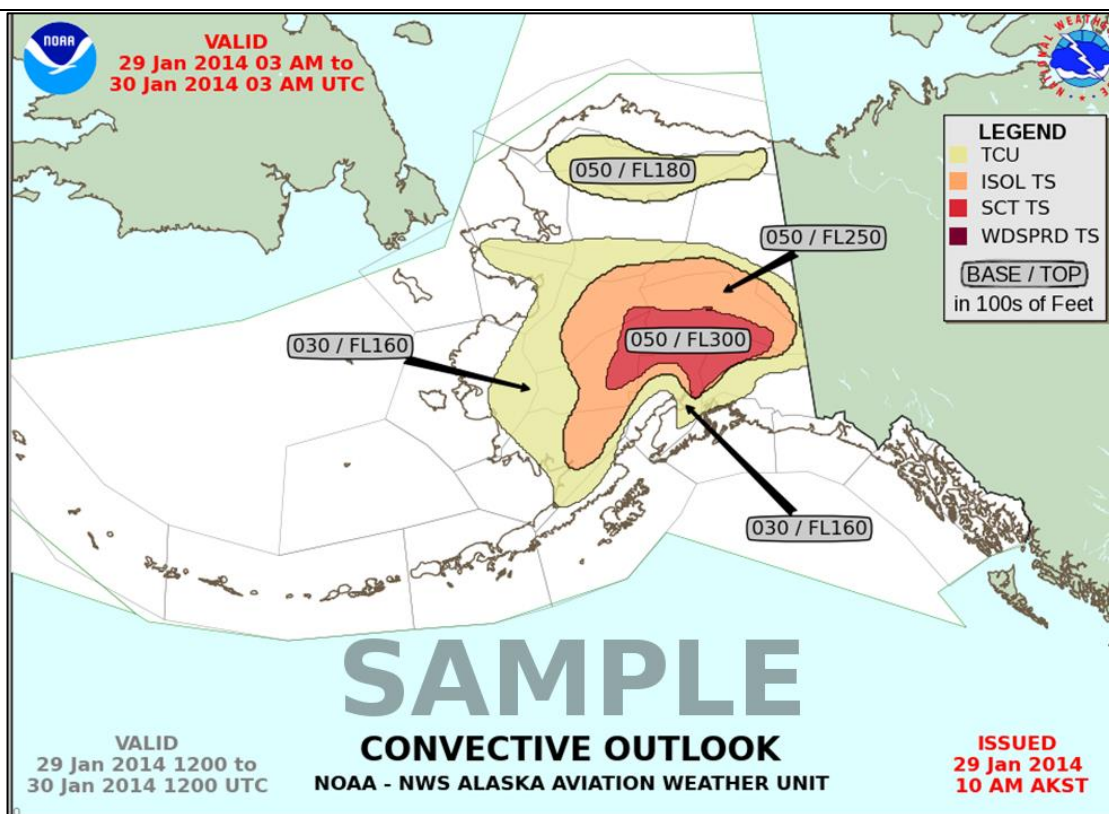


Figure 5A. An example Convective Outlook 24 hour summary graphic showing areas of thunderstorms and towering cumulus along with the base and tops of these convective clouds. The valid time is shown in the upper left corner in Alaska time and in UTC in the lower left corner. Locations of towering cumulus are depicted in yellow. Locations of isolated, scattered, and widespread are depicted in orange, red, and dark red respectively. The base and top of each layer forecast is in Mean Sea Level (MSL) in hundreds of feet and defined with a label and arrow.

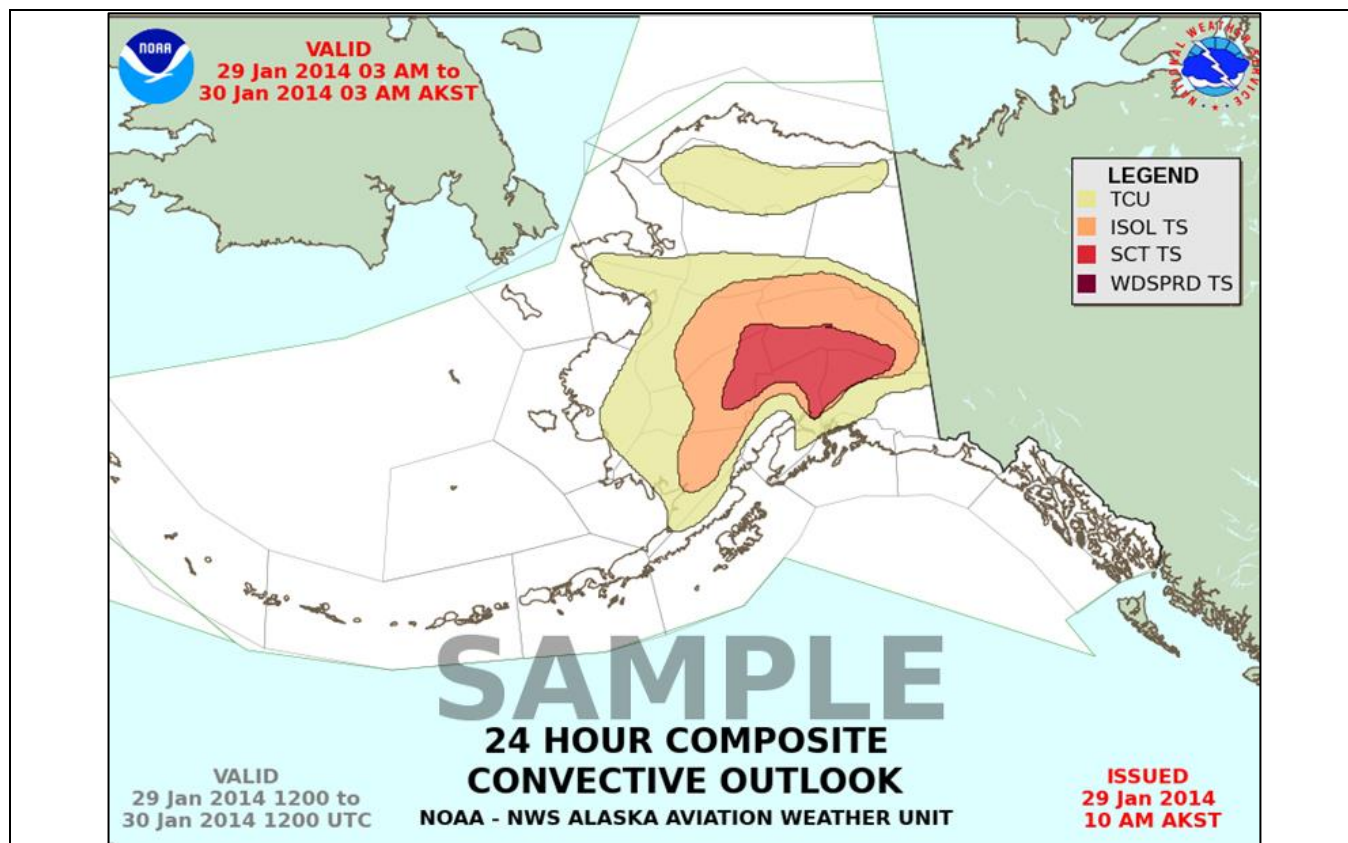


Figure 5B. An example Convective Summary graphic showing areas of thunderstorms and towering cumulus along with the base and tops of the convective clouds. The valid time is shown in the upper left corner in Alaska time and in UTC in the lower left corner. . Locations of towering cumulus are depicted in yellow. Locations of isolated, scattered, and widespread are depicted in orange, red, and dark red respectively. Since cloud bases and tops can change over the 24 hour period, the heights are not included on the summary graphic.

Web Display of Graphical Forecasts

The display of graphics can be found at <http://aawu.arh.noaa.gov/index.php?tab=2> . Table 3 provides a listing of the links for the graphical forecasts produced by AAWU.

Table 3. Graphic filenames on web page representing conditions included in Area Forecasts	
Graphic Type	Web Page Link
IFR/MVFR graphics	http://aawu.arh.noaa.gov/fcstgraphics/IFR_YYMMDDHH.png *
High Level Turbulence individual graphics	http://aawu.arh.noaa.gov/fcstgraphics/turb_high_YYMMDDHH.png **
12 Hour Turbulence Summary	http://aawu.arh.noaa.gov/fcstgraphics/turb_summary.png
Icing individual graphics	http://aawu.arh.noaa.gov/fcstgraphics/icing_YYMMDDHH.png **
12 Hour Icing Summary	http://aawu.arh.noaa.gov/fcstgraphics/icing_summary.png
Low Level Turbulence individual graphics	http://aawu.arh.noaa.gov/fcstgraphics/turb_low_YYMMDDHH.png **
24 Hour Convective Outlook	http://aawu.arh.noaa.gov/fcstgraphics/convection_YYMMDDHH.png **
Surface Chart	http://aawu.arh.noaa.gov/fcstgraphics/sfc.gif
<ul style="list-style-type: none">• YYMMDDHH represents a two-digit integer for year (YY), month (MM), day (DD), and hour (HH) for the valid time in local Alaska Time.• * Hours used for IFR/MVFR will be 04 and 10 with the 430am issuance, 12 and 18 with the 1230pm issuance, 20 and 02 with the 830pm issuance• ** Hours used for Convective outlook, Icing and Turbulence charts will be 00, 03, 06, 09, 12, 15, 18, and 21.	

Significant Meteorological Information (SIGMET)

A SIGMET is an unscheduled product issued any time conditions reaching SIGMET criteria are occurring or expected to occur within a 4-hour period. A SIGMET will have a valid period up to, but not exceeding, four hours. SIGMETs for continuing phenomena will be reissued at least every four hours as long as SIGMET conditions continue to occur in the area for responsibility. (**Note:** Volcanic ash SIGMETs will be valid for a period up to six hours.)

- Tornadoes.
- Lines of thunderstorms.
- Thunderstorms when embedded in other phenomena such as rain or restricted visibilities.
- Hail of 3/4" or greater diameter.
- Severe or extreme turbulence.
- Severe icing.
- Volcanic eruption.
- Volcanic ash, dust storms, sandstorms.